



## Place Value

### Year 1 Objectives

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
- given a number, identify one more and one less
- identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- read and write numbers from 1 to 20 in numerals and words.

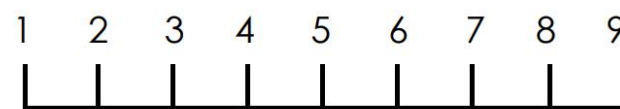
### Key Vocabulary

1 one	6 six	11 eleven	16 sixteen
2 two	7 seven	12 twelve	17 seventeen
3 three	8 eight	13 thirteen	18 eighteen
4 four	9 nine	14 fourteen	19 nineteen
5 five	10 ten	15 fifteen	20 twenty

## Modelled Examples / Concrete Pictorial Abstract

### Finding One More and One Less

When we count, 'one more' is the number **after** the number we are saying.

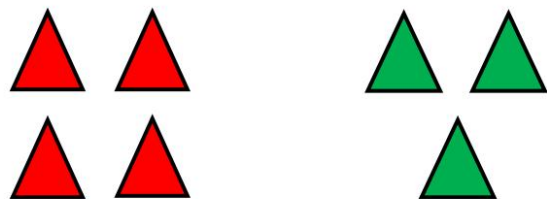


One more than 4 is 5.

'One less' is the number **before** the number we are saying.

One less than 4 is 3.

### Comparing Objects and Numbers

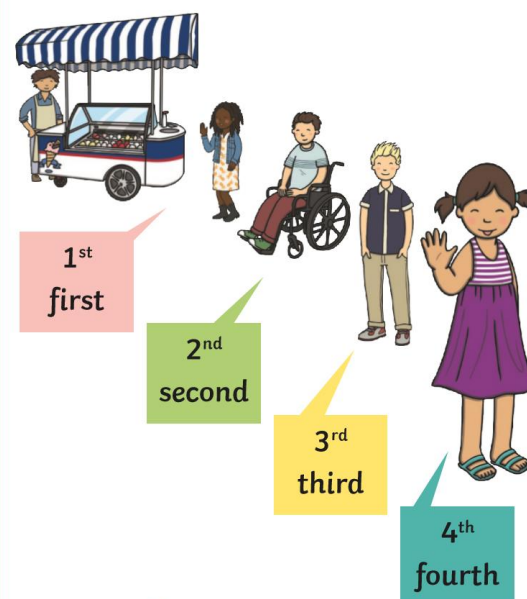


We can compare objects using words like 'more' and 'fewer'.

There are **more** red triangles than green.

There are **fewer** green triangles than red.

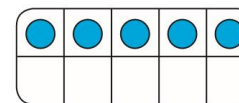
### Ordering



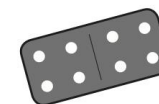
### Comparing



5 = 5  
equals

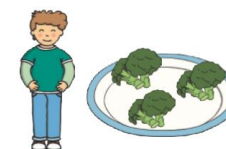


4 < 7  
less than

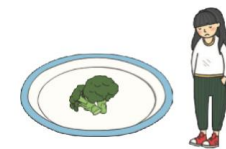


8 > 2  
greater than

two

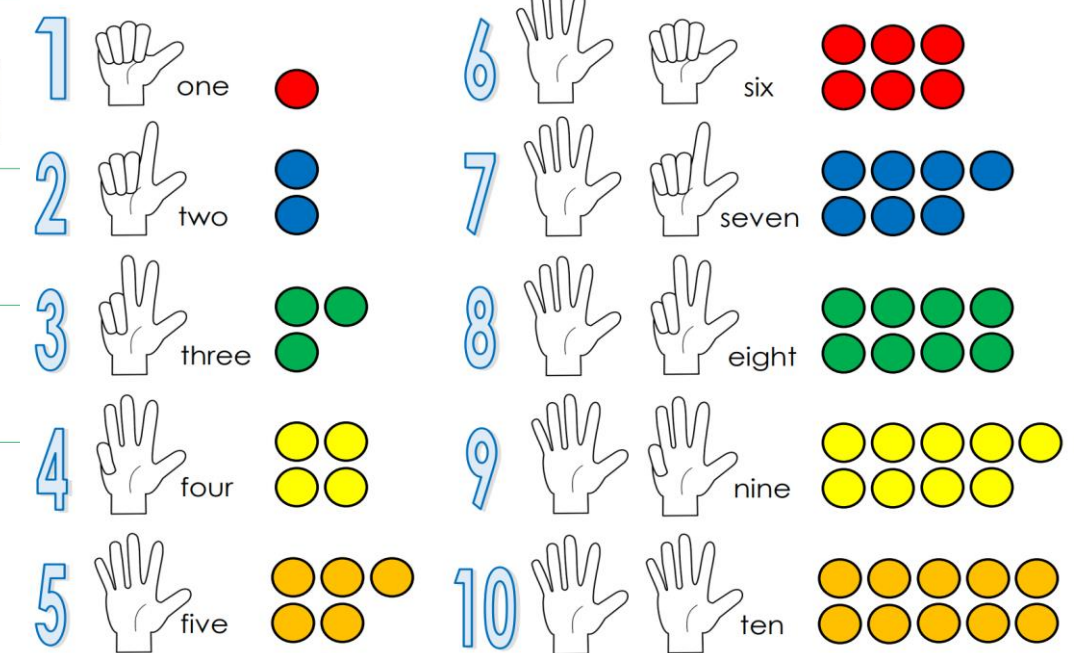


Lewis has the **most**.



Olive has the **fewest**.

### Numbers to 10



### Quick Quiz

- What number is one more than 18?
- What number is one less than 39?
- Write the number 13 in words
- Finish this sequence 2, 4, 6, \_\_, \_\_, \_\_, \_\_
- Complete the missing numbers 5, \_\_, 15, \_\_



## Addition and Subtraction

### Year 1 Objectives

- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as  $7 = \quad - 9$ .

### Key Vocabulary

add	number	1 One	2 two	11 eleven	16 sixteen
altogether	plus	3.three	4.four	12 twelve	17 seventeen
equals	subtract	5.five	6.six	7.seven	13 thirteen
less	take away	8. eight	9.nine	14 fourteen	18 eighteen
more		10. ten		15 fifteen	20 twenty

### Modelled Examples / Concrete Pictorial Abstract

#### Addition

When carrying out addition the mathematical symbols + and = should be recognised and applied.

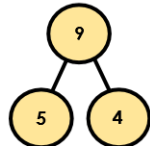
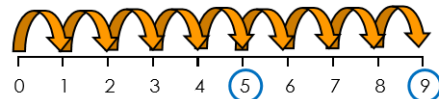
For example, if there are 4 orange and 2 blue counters, there are 6 counters in total.



This can be written as  $4 + 2 = 6$ .  
Four add two equals 6.

#### Adding Numbers by Counting All

One strategy used when adding is counting all of the objects to find the answer. For  $5 + 4 = 9$ , you count to 5 before counting another 4 to reach 9.

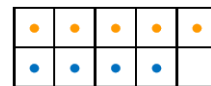
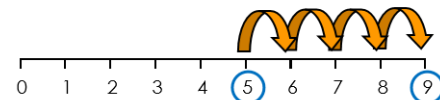


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#### Adding Numbers by Counting On

Another strategy to use is counting on from the first number to reach the answer.

For  $5 + 4 = 9$ , you start at 5 and count on 4 more.



#### Number Bonds with Numbers to 10

It is important to understand all of the ways that each number to 10 can be partitioned. This is called a number bond.



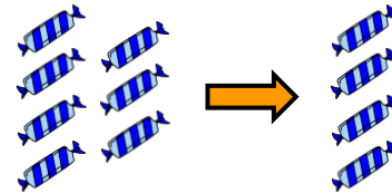
These are all of the number bonds for the number 5!

$$\begin{array}{ll} 0 + 5 = 5 & 3 + 2 = 5 \\ 1 + 4 = 5 & 4 + 1 = 5 \\ 2 + 3 = 5 & 5 + 0 = 5 \end{array}$$

#### Early Subtraction

First experiences of subtraction should be practical in a real life context before using the - symbol.

For example, If there were 7 sweets and 3 of them were eaten, how many would be left?



First, there were 7. Now, there are 4.

#### "Taking Away"

Before moving on to a more formal method, continue using practical examples. Use the - symbol, teaching the concept of 'taking away'.

For example, there were 5 balloons. 2 blew away. How many are there now?



$$5 - 2 = 3$$

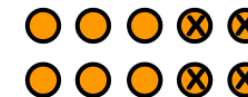
Five take away 2 equals 3.

#### Subtracting Pictorially

Drawing and crossing out is an effective way of starting to formalise subtraction.



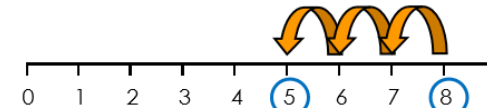
For  $10 - 4$ , you need to draw ten circles and cross out 4.



#### Subtracting on a Number Line

In Year 1, fluency in carrying out subtraction using a number line should be mastered.

For  $8 - 3$ , you should start on the number 8 and count back 3. The answer is 5. The number sentence is  $8 - 3 = 5$ .



#### Misconception Alert!



Remember not to include the starting number in your steps backwards!



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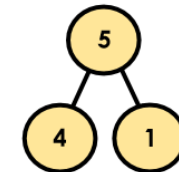
#### Fact Families

As more confidence is built with both addition and subtraction, links and patterns will start to be seen between them.



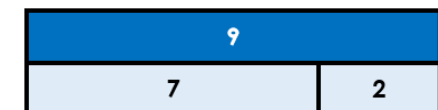
With 3 numbers, you can write 8 different number sentences.

$$\begin{array}{lll} 4 + 1 = 5 & & 5 = 4 + 1 \\ 1 + 4 = 5 & & 5 = 1 + 4 \\ 5 - 4 = 1 & & 4 = 5 - 1 \\ 5 - 1 = 4 & & 1 = 5 - 4 \end{array}$$



#### Missing Numbers

You can use your knowledge of number bonds and fact families to help find missing numbers.



$$\square + 2 = 9$$



If something add 2 equals 9, then 9 take away 2 equals the missing number. I know it is 7.

#### Quick Quiz

1. Fill in the missing number  $14 + \underline{\quad} = 20$
2. Fill in the missing number  $20 - \underline{\quad} = 8$
3. Write 3 other numbers sentences using this number sentence  $4 + 5 = 9$
4. What is 9 take away 5?
5. What is 7 add 6?





## Multiplication and Division

### Year 1 Objectives

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

### Key Vocabulary

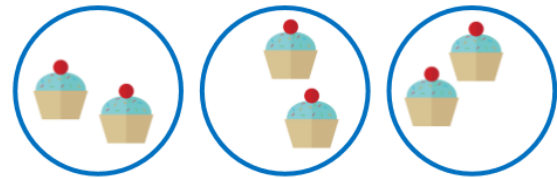
1. One	6. Six	11 Eleven	16 Sixteen	array	groups
2. Two	7. Seven	12 Twelve	17 Seventeen	double	halves
3. Three	8. Eight	13 Thirteen	18 Eighteen	equal	lots of
4. Four	9. Nine	14 Fourteen	19 Nineteen	grouping	sharing
5. Five	10. Ten	15 Fifteen	20 Twenty		

### Modelled examples / Concrete Pictorial Abstract

#### Making Equal Groups

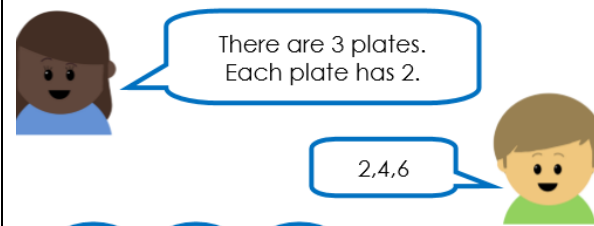
Before starting multiplication and division it is necessary to understand what it means to have equal groups.

For example: Each plate has 2 cakes.  
They are equal groups.



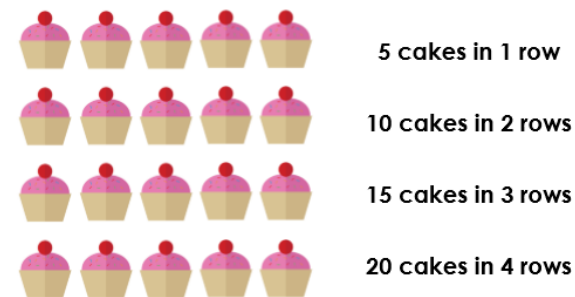
#### Adding Equal Groups

This idea can then be combined with knowledge of counting in 2s, 5s and 10s.

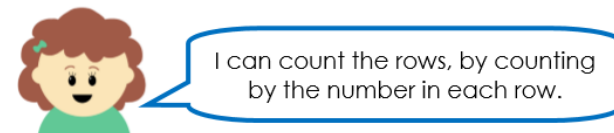


#### Arrays

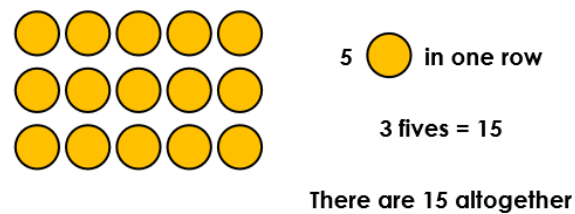
The idea then develops into making equal rows to organise objects clearly:



This group of rows is called an array.

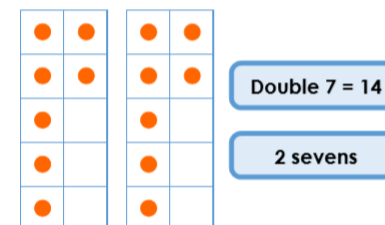


As well as using real objects, arrays can be made using representations, like counters or drawings.



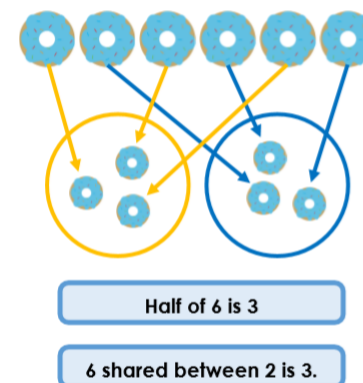
#### Double

An important part of multiplication is understanding that doubling a number makes 2 equal groups of that amount.



#### Half

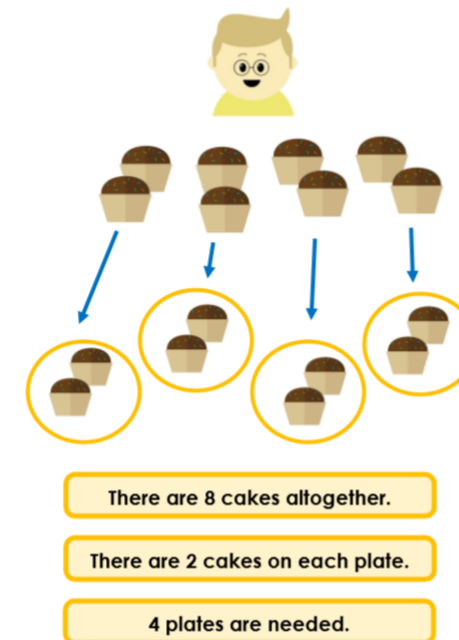
The inverse of this is half. This can be worked out practically by sharing between 2 groups.



#### Grouping Equally

When the total is known, finding the number of groups may be necessary. This is called division by grouping.

For example, if Alfie puts 2 cakes on each plate, how many plates are needed?



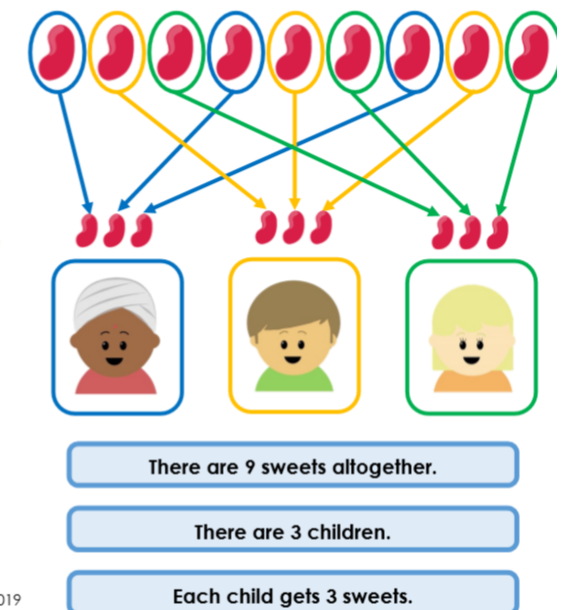
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#### Sharing by Grouping

Another type of division is by sharing equally. This involves knowing the number of groups you have, but not the number in each group.

For example, 3 children share 9 sweets equally, how many sweets does each child get?

Each child takes it in turns to take one, then again until there are none left.



#### Quick Quiz

- How many is 3 groups of 2?
- How many groups of 5 are in 20?
- What is double 8?
- What is half of 14?
- If you shared 15 sweets between 5 people. How many would they get each?



## Fractions

### Year 1 Objectives

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

### Key Vocabulary

1.one	6.six	11 eleven	16 sixteen	equal	quarter
2.two	7.seven	12 twelve	17 seventeen	find	recognise
3.three	8.eight	13 thirteen	18 eighteen	half	
4.four	9.nine	14 fourteen	19 nineteen	parts	
5.five	10.ten	15 fifteen	20 twenty		

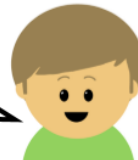
### Modelled examples / Concrete Pictorial Abstract

#### Recognising a Quarter

Similar to recognising half, shapes and objects are used to find quarters, knowing that they must be split into 4 equal parts.

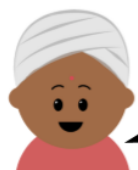
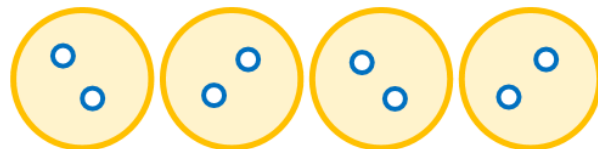


Only the second circle has been split into quarters. The others are not equal.



#### Finding a Quarter

Sharing practically between 4 is the first step to finding a quarter of objects. The objects can then be drawn around once confidence has grown.



I have 8 biscuits altogether.  
One quarter of 8 is 2.

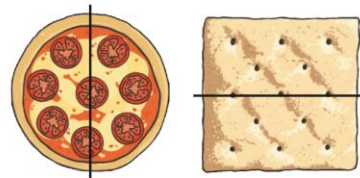
#### Finding a Quarter in Capacity

The word quarter is also used in capacity to describe when a container is a quarter full.

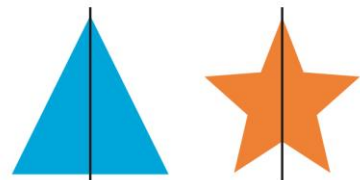


#### Half of a Shape

These objects and shapes are split in **half**.

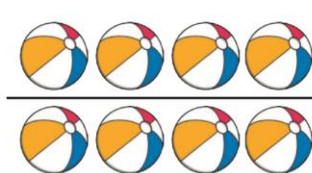


Each whole has **2 equal parts**.

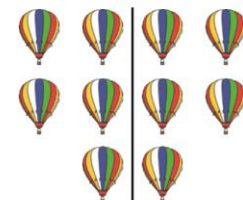


#### Half of a Group

There are 8 balls. Half of 8 is 4.



There are 10 balloons. Half of 10 is 5.



#### Recognising Half

Shapes and objects make a simple introduction to the concept of half. Understanding that half is made by splitting the whole into two equal parts is crucial. Explaining why a shape hasn't been split in half is as important as identifying those that have.



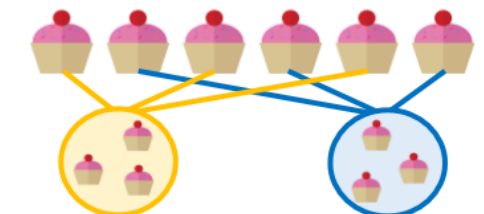
The cake isn't split in half as the top has all of the cherry and the bottom has none.

Half	Not half

#### Find Half

When finding half of a quantity it is necessary to know the total number and begin by sharing objects into 2 equal groups.

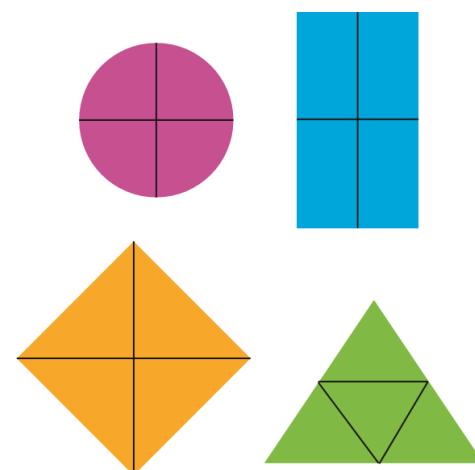
For example, half of 6...



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#### Quarter of a Shape

These shapes are split into **quarters**.



Each whole has **4 equal parts**.

#### Quick Quiz

- Can you draw a circle with a line to show a half?
- Can you get 12 objects and find a quarter of them?
- Can you split a group of 8 items into half?
- Can you draw a square and cut it into quarters?
- What is the difference between a half and a quarter?





# St Robert Southwell Catholic Primary School

Aiming For Excellence - Being The Best We Can Be

## Measurement

### Year 1 Objectives

- compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]; mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]; time [for example, quicker, slower, earlier, later]
- measure and begin to record the following: lengths and heights; mass/weight; capacity and volume; time (hours, minutes, seconds)
- recognise and know the value of different denominations of coins and notes
- sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
- recognise and use language relating to dates, including days of the week, weeks, months and years
- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

### Key Vocabulary

after	later	quicker
before	minutes	seconds
coin	next	slower
earlier	note	today
evening	o'clock	tomorrow
first	pence	morning
half past	pound	afternoon
hour		yesterday

## Modelled Examples / Concrete Pictorial Abstract

### Days of the Week

Ordering vocabulary continues to be used in relation to the days of the week.

There should be an understanding that the week is a cycle and even when written in a linear fashion, Sunday is before Monday.

Monday	Stem sentences support the children's language development:
Tuesday	_____ is after _____.
Wednesday	Today is _____.
Thursday	Yesterday was _____.
Friday	Tomorrow is _____.
Saturday	
Sunday	

### Months of the year.

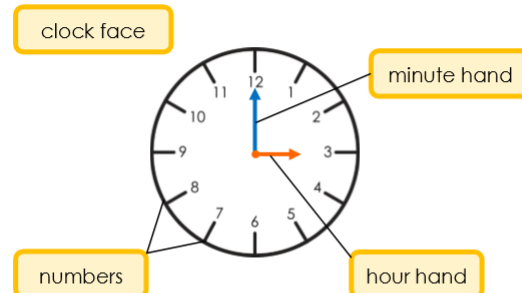
Similarly to the days of the week, months of the year can also incorporate the time language from earlier work.

Again, there needs to be an understanding that the end of one year leads to the beginning of a new year.

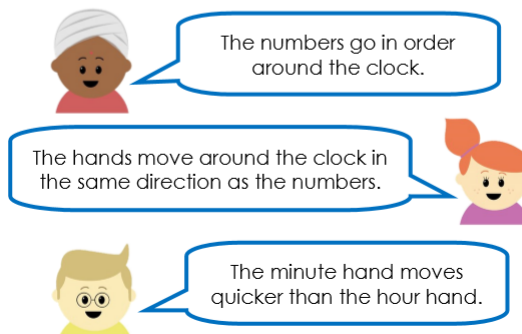
January	_____ comes after December.
February	
March	
April	July is after _____ and before _____.
May	
June	There is an opportunity for cross curricular links to be made to science and the seasons here.
July	
August	
September	
October	
November	The summer months are _____, _____ and _____.
December	

### Clocks

This is the first time children will have been formally introduced to clocks so an understanding of the different parts are necessary.



The children should notice different things about the clock.

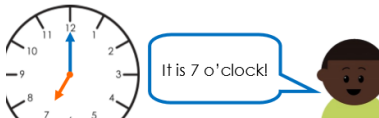


### O'clock

Clocks with moveable hands are needed to be able to manipulate the hands to make o'clock times and understand that the minute hand always points to the 12 when the time is o'clock. The hour hand informs us what number o'clock it is.

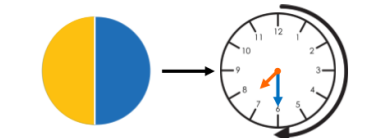
Misconceptions occur when there is uncertainty of which hand is which, for example making quarter past 12 instead of 3 o'clock.

As well as making the time, opportunities should be found to read clocks of a given o'clock time.



### Half past

When secure on o'clock, half past can be introduced. Links should be made to fraction work and the understanding of half.



It is essential that as well as knowing that the minute hand points to the 6, the hour hand must always be past the hour (half way to the next number) rather than pointing to the number at o'clock. This should also be expected when making the times on clocks.

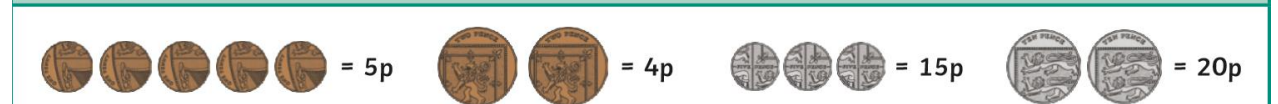
### UK Coins



### UK Notes



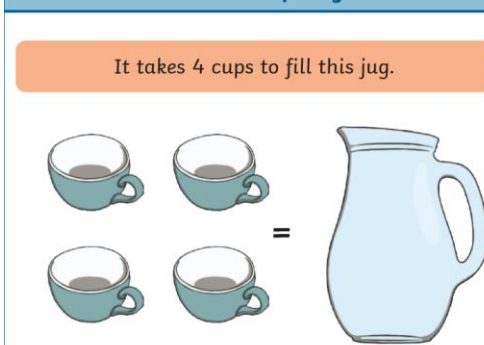
### Counting in Coins



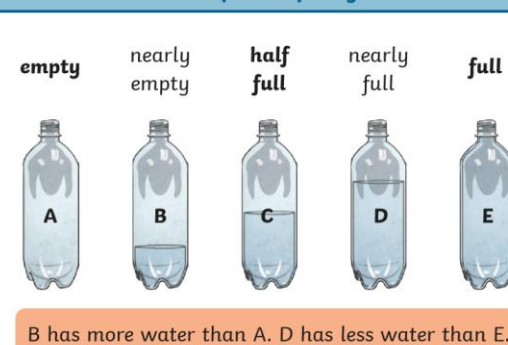
### Quick Quiz

- Can you draw half past 2 on a clock?
- What day comes before Wednesday?
- What month comes after May?
- Can you order items in your pencil case from shortest to longest?
- Can you order your pencil case items from lightest to heaviest?

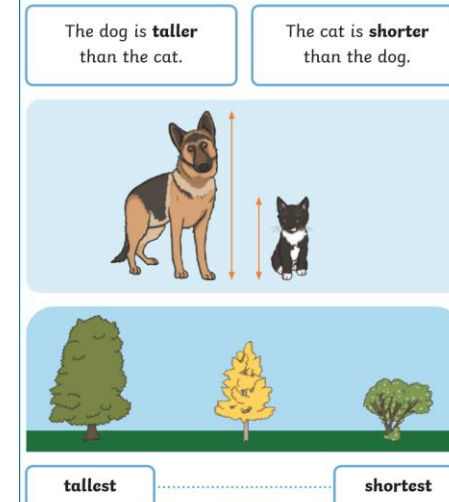
### Measure Capacity



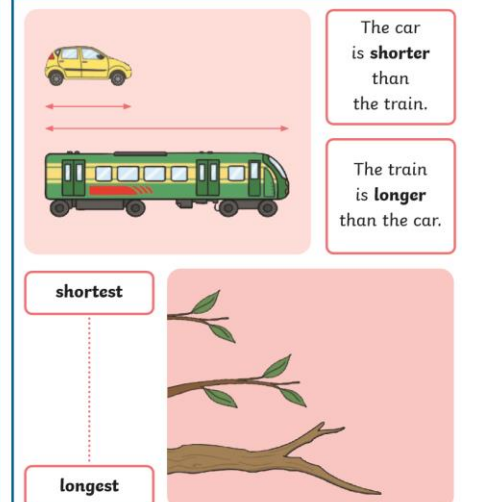
### Compare Capacity



### Height



### Length





Geometry: Properties of shape.

Year 1 Objectives

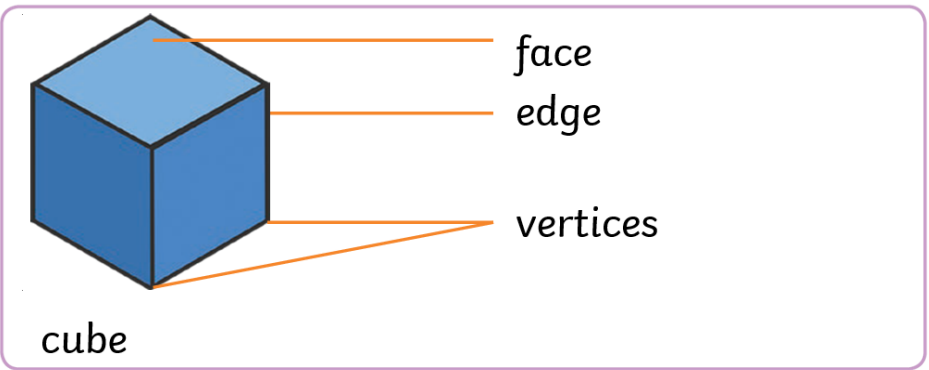
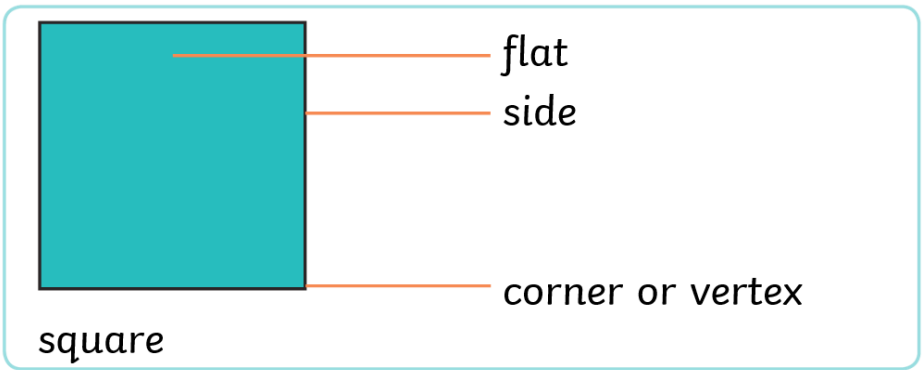
Geometry: Shape

- recognise and name common 2-D and 3-D shapes, including:
- 2-D shapes [for example, rectangles (including squares), circles and triangles]
- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].




Key Vocabulary

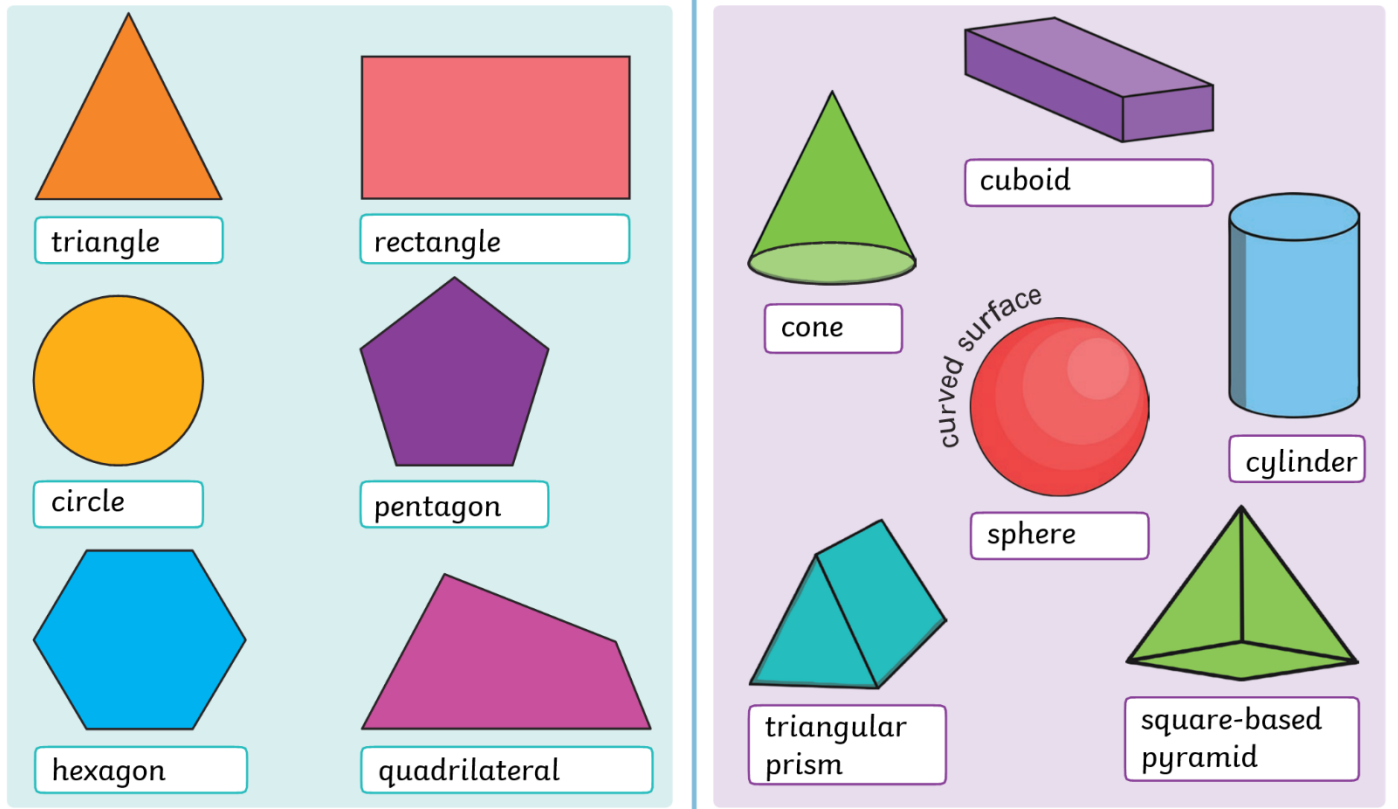
3D Shape	cube	round
2D Shape	cuboid	square
circle	curved	sphere
cone	flat	straight
corner	pattern	triangle
cylinder	pyramid	vertices
	rectangle	

Modelled Examples / Concrete Pictorial Abstract



Quiz

11.		What is the name of this shape?
12.		How many corners does a triangle have?
13.		What is the name of this shape?
14.		How many faces does a cube have?
15.		What is the name of this shape?





# St Robert Southwell Catholic Primary School

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## Year 1 Maths Knowledge Organiser -

### Geometry: Position and Direction

#### Year 1 Objectives

- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

above  
anticlockwise  
around  
backwards  
below  
between

bottom  
clockwise  
close  
direction  
down  
forwards  
full  
half

#### Key Vocabulary

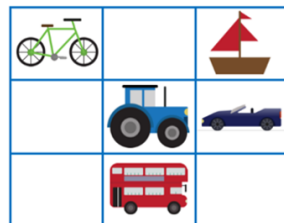
Inside  
Left  
middle  
motion  
near  
on top  
outside

position  
quarter  
right To  
three  
under  
up  
whole

### Modelled Examples / Concrete Pictorial Abstract

#### Position

Children need to use language to answer questions and describe positions of objects relative to other things. For example:



The tractor is in the middle.  
The car is on the right of the tractor.

#### Direction

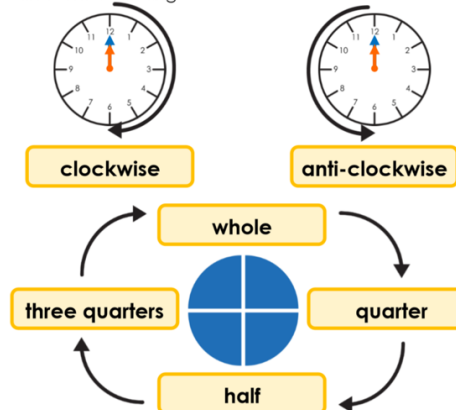
From this language the children can describe how an object will need to move to get to another place. It is important to take note of the direction the object is facing.

The bus needs to move forwards 1 and up 2 to get to there boat.



#### Movement

Movement describes turns and uses knowledge of time and fractions to support language development and understanding.



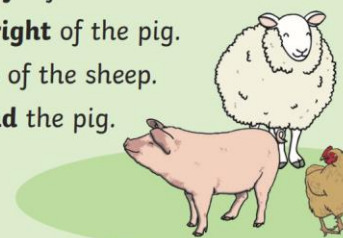
This can then be used to help describe how something has turned.



The car has made a quarter turn clockwise.

#### Describing Position

The pig is to the **left** of the hen.  
The hen is to the **right** of the pig.  
The pig is in **front** of the sheep.  
The sheep is **behind** the pig.




The duck is **below** the doll.  
The car is **above** the doll.  
The car is on the **top** shelf.  
The doll is on the **middle** shelf.  
The duck is on the **bottom** shelf.  
The doll is **between** the car and the duck.




#### Quiz

#### Circle the correct answer


- Where is the man standing?




Underneath the mountain / On top of the mountain /  
Beside the mountain / In front of the mountain
- How would you set the timer for 15 minutes?




Turn it all of the way round / Turn it half of the way round clockwise /  
Turn it a quarter of the way round clockwise /  
Turn it quarter of the way round anticlockwise
- Which statement is true?



The dog is far away / The dog is underneath the house  
The dog is on top of the house  
The dog is outside and might come inside
- Cars have to drive \_\_\_\_\_ a roundabout.



Around / Over / under / Through
- Where is the yellow plant pot?



Underneath the others / In front of the others  
On top of the others / In the middle of the others



# St Robert Southwell Catholic Primary School

*Aiming For Excellence - Being The Best We Can Be*

*Following Jesus' footsteps and inspired by St Robert Southwell we work hard, aim high and treat everyone with honesty and gentleness.*